Dr. Elisabeth R. Newton

Assistant Professor, Dartmouth College

Contact

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Professional Appointments

Assistant Professor, Dartmouth College	2019–present
NSF Fellow, MIT	2016–2018
Adjunct Professor, BU Metropolitan College	2017
Ph.D., Astronomy and Astrophysics, Harvard University	2016
B.S., Physics with Highest Honors, College of Creative Studies at UC Santa Barbara	2009

Publication Summary

8 first-authored publications in IOP Journals
7 co-authored publications in IOP Journals, MNRAS, and Nature
15 collaboration papers in IOP Journals and A&A

Awards and Honors

Scialog Fellow, Time Domain Astrophysics	2019
National Science Foundation Postdoctoral Fellow, MIT	2016–2018
SPOT Departmental service award, MIT	2016
Fireman Fellow, Harvard University Dept. of Astronomy	2016
Hubble Postdoctoral Fellow, declined	2016
Harvard Horizons Scholar, Harvard University	2015
National Science Foundation Graduate Fellowship, Harvard University	2010–2013
Distinction in Teaching, Harvard Bok Center for Teaching and Learning	2011
Arnold Nordsieck Award, UCSB Dept. of Physics	2009
Speaker, College of Creative Studies Graduation, UCSB	2009
UC Regent's Scholar, UCSB	2005–2009

Grants Awarded

Principal Investigator, *Hubble Space Telescope*
"The Evaporating Exosphere of a Young Exoplanet" Cycle 24 Proposal 14615, 16 orbits

National Science Foundation Astronomy and Astrophysics Postdoctoral Fellowship
"The Physics of the Smallest Stars and the Planets That Orbit Them" Award 1602597, $267K

Competitively Awarded Observing Time

Principal Investigator

Spitzer Space Telescope
"*Spitzer*'s window onto the evolution of young exoplanets", **100 hours** 2018

NASA IRTF, iSHELL **4 nights total**
"Evaporating exoplanet atmospheres with He 10830 ", 2 nights 2018
"The evolution of M dwarf magnetic fields", 2 nights 2017

Hubble Space Telescope
"The evaporating atmosphere of a young exoplanet", **16 orbits** 2017

NASA IRTF, SpeX **15 nights total**
"The evolution of M dwarf magnetic fields", 3.5 nights 2017
"Abundances of M Dwarfs in the solar neighborhood", 11.5 nights 2011–2012

Magellan Telescopes **12 nights total**
"The evolution of magnetic activity in southern M dwarfs", 3 nights 2017
"Properties of M dwarfs targeted by MEarth-South", 9 nights 2011–2012

Tillinghast 60-inch at Mt. Hopkins
"Activity, metallicity, and rotation in mid-to-late M dwarfs", **15 nights** 2015

Co-Investigator

RVxTESS project (TBD)

Spitzer Space Telescope **263.5 hours total**
"A Young Three-Planet System in the Hyades", 18.5 hours 2017
"A Search for Exomoons and TTVs from LHS 1140b", 39 hours 2017
"Zodical Exoplanets in Time: Are These Worlds Flat?", 106 hours 2016
"A Search for Sub-Earth Sized Transiting Planets 12 Parsecs from the Sun", 100 hours 2015

Chandra/Swift, **185ks total**
"Probing the dynamo mechanism in fully convective stars", 85ks 2017
"Understanding the rotation/activity relation", 100ks 2015

Magellan Telescopes, **10 nights total**
"Flares, rotation, and magnetic activity in mid-to-late M dwarfs", 4 nights 2017
"Star spot double take" 4 nights 2016
"Two eyes on the prize" 2 nights 2017
"The origin of warm Neptunes" 4 nights 2018

Tillinghast 60-inch at Mt. Hopkins
"Flares, rotation, and magnetic activity in mid-to-late M dwarfs", **3 nights** 2016

48-inch at Mt. Hopkins
"Absolute Sloan photometry for the MEarth M dwarfs", **21 nights** 2014–2015

NASA IRTF
"Characterizing low-mass stars hosting small planets", **16 nights** 2015–2017

Teaching and Advising

Undergraduate students supervised:
J. Lopez Bonilla, Dartmouth undergraduate 2019
A. Sanchez, C. Skye, MIT undergraduates 2017–2019
I. Kain, Northeastern undergraduate 2017–2019
I. Nisley, MIT senior thesis, co-supervised 2016–2017
H. Pegues, Banneker Summer Institute 2016

Adjunct professor, Prison Education Program, Boston University 2017
teaching BU Met. College course "Introduction to the Solar System" in a medium-security prison

Kaufman Teaching Certificate Program, MIT 2017

Teaching fellow, The Astronomy Research Seminar, Harvard University 2012
helped design new observation-based freshman seminar; prepared and led lessons and observing sessions

Teaching fellow, Introductory Astronomy, Harvard University 2011–2012

Instructor, Science Club for Girls 2012–2013

Instructor, Campus Learning Assistance Services, UC Santa Barbara 2008–2009

Colloquia and Seminars

"The Astrophysics of the Smallest Stars and Their Planets,"
Rider University 2/22/2019
"Spin and Magnetism in Cool Stars,"
Dartmouth Physics Colloquium, **invited** 1/26/2018
CU Boulder 11/3/2017
Dartmouth Physics Colloquium, **invited** 4/14/2017
Columbia University 2/23/2017
Caltech Astronomy Colloquium, **invited** 1/11/2017
UT Austin Astronomy Colloquium, **invited** 9/27/2016

"The rotation and Galactic kinematics of M dwarfs in the Solar Neighborhood,"
CfA ITC Luncheon, Boston MA 10/10/2015

"The fundamental physical properties of M dwarfs in the Solar Neighborhood,"
Boston University, Boston MA 10/6/2015

"The rotation of M dwarfs and the prospects for gyrochronology"
Harvard-Smithsonian CfA Stars and Planets Seminar, Cambridge MA, **invited** 9/14/2015

"M Dwarfs in the MEarth Project," U. of Chicago 12/12/2014

"Properties of M dwarf exoplanet planet hosts based on their near-infrared spectra,"
Geneva Observatory 3/21/2014

Conference Presentations

Oral Presentations

"Rotation and activity in M dwarfs," stellar activity splinter session,
Extreme Precision Radial Velocities IV Grindewald, Switzerland, **invited** 3/18/2019

"Exoplanets and SALT,"
Advances with SALT, Pretoria, South Africa 11/14/2018

"M dwarfs as exoplanet hosts: characterizing our nearest and smallest stellar neighbors,"
AAS 233, Seattle WA 1/7/2019

"Slowly Spinning Southern M Dwarfs,"
AAS 231, Washington D.C. 1/11/2018

"The ages and evolution of field M dwarfs from rotation, activity, and kinematics,"
Ages of Stars^2, Elba 9/19/2017

"Age, rotation, and activity in M dwarfs and the implications for planet-hosting stars"
Radio Exploration of Habitability, Palm Springs CA, **invited** 5/8/2017

"Spin and Magnetism in the Smallest Stars,"
MIT Rising Stars in Physics, Cambridge MA 10/19/2016

"Rotation and Activity in M dwarfs: the Implications for Exoplanet Surveys,"
Operation M, Cambridge MA, **invited** 8/29/2016

"The Evolution of Rotation and Magnetism in Fully Convective M dwarfs,"
Cool Stars 19, Uppsala 7/8/2016

"Temperatures and Radii of Low-Mass Dwarf Stars Estimated from Near Infrared Spectra,"
Cool Stars 18, Flagstaff AZ 6/9/2014

"Empirical Estimates of Fundamental Properties for Nearby M Dwarfs Based on NIR Spectra"
AAS 223, Washington D.C. 1/7/2014

"Metallicities of M dwarfs Targeted by the MEarth Transiting Planet Survey,"
Transiting Planets in the House of the Sun, Maui, HI 6/6/2012
AAS 219, Austin, TX 1/11/2012

Poster Presentations

"Introduction to the Solar System in a medium security prison,"
AAS 233, Seattle WA 1/8/2019

"The rotation of nearby M dwarfs and implications for exoplanet discovery,"
Extreme Solar Systems III, Waikoloa HI 11/29/2015

"Rotation periods of nearby, mid-to-late M dwarfs from the MEarth Project,"
IAUS Young Stars and Planets Near the Sun, Atlanta, GA 5/11/2015

"Rotation periods for mid-to-late M dwarfs estimated from the MEarth Project"
AAS 225, Seattle WA 1/5/2015

"NIR Metallicities, Radial Velocities and Spectral Types for 447 MEarth M dwarfs,"
Protostars and Planets VI, Heidelberg, Germany 7/14/2013

"Investigating M Dwarf Metallicity Calibrations"
Extreme Solar Systems II, WY 9/12/2011

"Measuring M Dwarf Metallicities To Inform The MEarth Project Target List"
AAS 218, Boston MA 5/25/2011

"The Size, Luminosity and Stellar Mass of Compact Lensed Galaxies at Intermediate Redshifts"

AAS 217, Seattle WA 1/12/2011

Professional Service to the Community

Working group member, *TESS* Follow-up Observing Program 2018–present
Working group member, *TESS* Open Cluster Survey 2016–2018
Grant review panelist for National Science Foundation and NASA programs
Referee for MNRAS, IOP journals, and *Nature* 2013–present
Mentor, WISTEM (undergraduates), Harvard Astro (graduates) 2012–2014
Board member, Harvard Graduate Women in Science 2011–2014
Co-founder and co-organizer, Harvard Observing Project Co-founder 2011–2014
- open observing nights for undergraduates from all majors, focusing on a specific scientific goal

Science Communication

Collaborations and Conferences

Astrobites (astrobites.com)
- daily blog aimed at undergraduates with readership in excess of 10,000 unique visitors
Co-founder 2010
Contributor, Astrobites blog 2010–2015

Communicating Science Conference (comscicon.com)
- ongoing workshop series for graduate students, drawing around 1000 applicants annually
Co-founder 2013
LOC and POC member, ComSciCon National 2013
POC member, ComSciCon National 2014
LOC member, ComSciCon Local 2014

Public talks

Shedding Light on Red Dwarf Worlds," Harvard Horizons Symposium (5/6/2015)
youtu.be/VgI8e21XjlE

"The Exoplanet Era," Aldrich Astronomical Society (2/28/2015)

"The Exoplanet Express," Cambridge Senior Center Cosmos lecture series (1/13/2015)

"Red Dwarf Worlds," Harvard-Smithsonian CfA Observatory Night (10/16/2014)
youtu.be/hQ3tdm_onwY?t=15m18s

"Gravitational Lensing and Dark Matter: Life, the Universe and (Almost) Everything,"
New Hampshire Astronomical Society (8/17/2012)

"The Evolution of the Universe: from Cosmic Soup to Planet Earth,"
Harvard Science in the News Lecture Series (10/26/2011)